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Disfluent Pausing Effects on Listener Judgments of an ASL-English Interpretation

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Abstract

Although not all spoken language pauses are purposeful or functional, there is general agreement on the function and appropriate length and placement of pauses in English. Failing to conform to this agreement constitutes a pausing disfluency. In an interpreted environment, pauses do not generally detract from the discourse event, nor do they negatively impact the participants' perception of one another, as long as the interpreter maintains generally acceptable pausing parameters (Fors, 2011; Heldner & Edlund, 2010; Krivokapi, 2007). Listeners of any communication event invariably form opinions about the speaker's personality and make judgments about their character and background, forming a favorable or unfavorable attitude (Isham, 1986). Cokely (1981, 2007) refers to these judgments or attitudes as metannotative qualities: non-content characteristics that guide a listener's overall impression of a speaker. This study investigated the effect pausing disfluencies have on a listener's judgment of the speaker; specifically, the effect of disfluent pausing on a listener's judgment of a speaker in an ASL-English interpreted text. Relevant to practicing interpreters, findings indicate pausing disfluencies in an ASL-English interpreted text negatively affect the listener's judgment of the ASL user.

Introduction

Hesitations or pauses occur frequently when we produce spoken or signed languages. While a pause may seem a small element, a pause can skew target language reception if it occurs in an atypical place in an utterance (Fors, 2011; Krivokapi, 2007; Ramanarayanan, Bresch, Byrd, Goldstein, & Narayanan, 2009), or if its duration is just a little too long or too short (Heldner & Edlund, 2010; Krivokapi, 2007). Hesitations occur for many reasons (Brennan & Williams, 1995; Levelt, 1983; Schachter, Christenfeld, Ravina, & Bilous, 1991; Schnadt & Corley, 2006), and have been shown to affect listeners' memory of what was said (Corley, MacGregor, & Donaldson, 2007) and what listeners attend to (Arnold, Tanenhaus, Altmann, & Fagnano, 2004). The cognitive challenges of simultaneous interpreting are extensive, and ought to produce disfluencies in the target language interpretation, yet little attention is given to how these pauses might affect linguistic and metalinguistic perceptions of the speaker, the interpreter, or the message. This study began to investigate these issues by manipulating interpreting disfluencies to determine the effects on listeners' perceptions, attitudes and judgment of the speaker.

Literature Review

Pausing in English

Prosodic features of spoken languages vary among language users, communities, and languages. Shigemitsu (2005) states that the perception of pause length is culturally and linguistically relevant. Consider that pauses of up to five seconds for Japanese and Chinese speakers are not perceived as pragmatic breakdowns in conversation, whereas they are in Western culture. Trudgill (2000) has shown that in American linguistic exchanges, pauses as short as four seconds can generate embarrassment. Although there are norms in pitch, pace, intonation and pausing for individual languages, they are not absolute.

Differing assumptions about the appropriate length of a pause can create imbalance within a conversation (Tannen, 2000). Heldner and Edlund (2010) report the majority of silences in conversations are shorter than 1000 milliseconds (ms); however, a number of factors can impact that length, including speech rate, phrase length, and syntax, even within individual speakers. Krivokapi (2007) found the duration of a pause is a structural factor influencing discourse organization. For example, speakers typically pause longer at topic shifts than other discursive boundaries, and pauses are more than twice as long during description tasks than during interviews (1320 ms vs. 520 ms) (Grosjean & Deschamps, 1975, as cited in Fletcher, 2013). The length of an utterance can change how we pause. When reading, a greater number of syllables in a phrase can cause pauses between sentences as long as 1100-1300 ms (Fant, Kruckenberg, & Ferreira, 2003).

There appears to be agreement as to the function of pauses. Hatch (1992) indicates one function of pauses is to allow for turn negotiation. Pauses are typically found at transition relevant places (TRP), where they can invite a turn completion or initiate a discourse turn exchange, allowing the listener to contribute to the conversation. A second purpose is for utterance planning. Pausing nearly always occurs between syntactic or utterance boundaries (Fors, 2011), which serves to allow the speaker to plan his or her next clause (Ramanarayanan et al., 2009). However, Krivokapi (2007) reports that pausing may occur *within* a syntactic unit rather than at the end of one in order to avoid yielding a conversational turn or to provide emphasis.

Not all pauses are purposeful or functional. On occasion, speakers will pause because of difficulty in planning or executing their utterance. Ramanarayanan et al. (2009) suggest that these sorts of disfluencies tend to occur in less predictable places within the utterance rather than at phrase boundaries, and interpret such ungrammatical pauses as indicators that speech production has broken down at some point. This is supported by data from Bortfeld, Leon, Bloom, Schober, and Brennan (2001), who have shown that pausing disfluencies are more common with increased cognitive load and are more likely to occur near the beginnings of utterances where planning effort is highest. While mid-utterance pauses are often deemed disfluencies, they may not impede comprehension. In fact, they may carry useful metalinguistic information for the listener regarding the speaker's confidence and speech planning difficulties (Bortfeld et al., 2001).

Pausing in ASL

Grosjean and Lane (1977) define an ASL pause as a period of time between two signs when the

hands are not moving and can include a holding of a sign. Data suggest that ASL pauses mark similar linguistic production processes as in English (Grosjean & Lane, 1977). In ASL, a sign-hold paired with a pause often marks a TRP used to initiate a turn exchange (Hatch, 1992). Varying the length of the pause or hold serves to parse segments, phrases, or sentences (Grosjean & Lane, 1977; Winston, 2000). The length of these pauses varies, as they do in English, depending on organizational structures in the utterance (Gee & Kegl, 1983). In addition, as is true in English, pauses occur when a signer is thinking or planning an utterance (Winston, 2000).

Pausing in Interpretation

Winston and Monikowski (2004) found ASL pauses made by interpreters typically look like a handclasp or open-hands and are intended to keep the watcher's attention. These pauses may be accompanied by movement cessation, head nods, or lowered gaze. As noted, the function of pauses generated by an interpreter is no different than those found in ASL or English. In terms of interpreting between these two languages, interpreters use extralinguistic pausing to mark topical boundaries within their ASL interpretation (Metzger, 1995; Winston & Monikowski, 2004). Other data indicate that interpreters understand that pauses represent discourse boundaries (Barik, 1973) and they use pauses to create similar boundaries in their target message as were found in the source message (Siple, 1993), although an interpreted pause may be somewhat shorter than the original (Barik). As is true in English and ASL, interpreters use pauses to manage turn-taking (Roy, 2000). Specifically, Zimmer (1989) found interpreters use turn-holding filled-pause markers such as "uhm," "er," and "well" to avoid silence or the exchange of a turn. In other words, interpreters employed filled pauses to avoid a TRP (Hatch, 1992).

Research has identified a few variables that may affect pausing in an interpretation. One might expect there may be more pausing in an interpreted message because the added cognitive load of interpreting increases the need for time to plan the next utterance. The complex work required to process the source message and render the target message may introduce a slight shift in the timing of pauses (Hatch, 1992; Metzger, 1995; Roy, 2000). Furthermore, Roy (2000) has shown that interpreters use pauses to manage and direct the interaction, which result in a slight shifting of the pause relative to where it was produced in the source message. The introduction of slightly shorter pauses or slightly shifted pauses does not generally detract from the discourse event, nor do they negatively impact the participants' perception of one another as long as the interpreter maintains generally acceptable pausing parameters (Fors, 2011; Heldner & Edlund, 2010; Krivokapi, 2007). Nevertheless, typical pausing in an interpreted interaction may delay turn-taking. If the source message has disfluent or random pausing, however, it can interfere with the interpretation (Siple, 1993).

Metanotative Qualities

When we listen to a speaker, we form opinions about personality and judgments about character and background, forming a favorable or unfavorable attitude about the speaker (Isham, 1986). Cokely (1981, 2007) refers to these judgments or attitudes as metanotative qualities: non-content characteristics that guide a listener's overall impression of a speaker. Cokely (1981) states that it is reasonable to expect that listeners, both Deaf and non-Deaf, ought to make similar metanotative assessments of speakers. To test this, he had Deaf and non-Deaf participants

evaluate two different English speakers. Certified interpreters interpreted the presentations, and the Deaf participants could see both the speaker and the interpreter. Both Deaf and non-Deaf participants were asked to rate the speaker's metanotative qualities. Analyses indicated that Deaf speakers had formed more positive opinions about the speakers along a majority of the rating categories than the non-Deaf participants. A possible reason for this is that something about the quality of the interpretation or the interpreter's behaviors may alter Deaf participants' assessment of the speaker in an English-ASL scenario (Cokely, 1981, 2007).

Research findings outlined thus far suggest that cognitive simultaneous interpretations should show disfluent pauses and that those pauses have the potential to change a listener's perception of a speaker. Cokely's (1981) work demonstrates that listeners who have to rely on an interpreter for access to the source message have different perceptions of the speaker than listeners who do not need the interpreter. The current study investigated the confluence of these two issues on listeners' perceptions of a speaker. If an interpreter is needed to access the source message and that interpreter produces disfluent pauses, then we hypothesized that listeners who only have access to the interpreted message should have different perceptions of the speaker than listeners who (a) have to rely on an interpretation without disfluent pauses, or (b) listeners who do not have to rely on the interpreted message at all.

Method

Participants

The experimental group was comprised of 54 students (33 female, 21 male) enrolled at a four-year public institution in the southeastern United States. Participants volunteered to be part of the subject pool to earn research credit for their introductory psychology course. The mean age for all participants was 19 years (SD = 4; range = 18-43). Fifty-one participants (94%) identified English as their first language. Baseline data were generated by four female student volunteers (mean age = 20; SD = 2; range = 20-23) enrolled in an interpreter education program at a sister institution. These participants had achieved at least an Intermediate Level of language ability on the Sign Language Proficiency Interview (SLPI). The Institutional Review Board approved this study in compliance with standards for research with human subjects.

Materials and Procedures

Video footage of an ASL monologue interpreted into English describing the cardiovascular system was selected as the source material because it contained multiple incidences of atypical pausing. Atypical pausing is defined as pausing that does not conform to conventional pausing features in English, specifically, pauses that occur mid-utterance and/or extends beyond 4,000 ms (Trudgill, 2000). The ASL presenter was pursuing a baccalaureate degree in kinesiology and presented a lecture designed by an assistant professor of physiology. The lecture was recorded in a studio-like setting. The interpreter was a nationally certified interpreter holding a baccalaureate degree and over 20 years of professional interpreting experience. The interpretation was rendered in a consecutive format, and the interpreter had an opportunity to review the presenter's notes beforehand.

Stimulus texts. The ASL-English interpreted videotext was left unedited at 14:12 minutes long and labeled VID-PAUSE. This original version contained 21 mid-utterance pauses

and nine boundary pauses that extended beyond 3,000 ms. The audio track of the videotext was exported to an audio-only version. The original pauses were preserved so this text was also 14:12 minutes and was labeled AUD-PAUSE. The passage below gives examples of several mid-utterance pauses and their duration.

01:26.976 - 01:28.580	*Pause: Boundary (1,600 ms)*
01:28.579 - 01:29.927	"It is also unique"
01:29.925 - 01:31.829	*Pause: Mid-utterance (1,900 ms)*
01:31.832 - 01:32.889	"in its makeup"
01:32.892 - 01:33.384	*Pause: Mid-utterance (492 ms)*
01:33.379 - 01:33.855	"and"
01:33.863 - 01:34.955	*Pause: Mid-utterance (1,092 ms)*
01:34.956 - 01:36.956	"that it's autorhythmic;"
01:36.959 - 01:38.670	*Pause: Mid-utterance (1,711 ms)*
01:38.677 - 01:39.370	"meaning"
01:39.370 - 01:39.679	*Pause: Mid-utterance (309 ms)*
01:39.677 - 01:41.552	"that it beats on its own"
01:41.556 - 01:42.556	*Pause: Boundary (1,000 ms)*
01:42.550 - 01:48.579	"So, if you would remove it from the thoracic cavity it would continue to beat on its own."

This audio-track was edited to remove or reduce atypical pausing using WavePad 5.82 software to create an AUD-NO PAUSE version. The same example segments from above were edited from the original 21,603 ms to 14,732 ms.

01:03.223 - 01:03.640	*Pause: Boundary (417 ms)*
01:03.636 - 01:08.658	"It is also unique in its makeup and that its autorhythmic"
01:08.661 - 01:08.948	*Pause: Mid-utterance (287 ms)*
01:08.941 - 01:11.694	"meaning that it beats on its own"
01:11.698 - 01:11.999	*Pause: Boundary (301 ms)*
01:11.998 - 01:17.955	"So, if you would remove it from the thoracic cavity it would continue to beat on its own."

The next example from the AUD-PAUSE text reveals several mid-utterance pauses occurring in quick succession to one another. This excerpt is 22,064 ms long and provides evidence of an extended (4,810 ms) mid-utterance pause.

02:00.483 - 02:03.589	*Pause: Boundary (3,106 ms)*
02:03.585 - 02:06.991	"There are many million, 2-3 million cells"
02:06.992 - 02:11.802	*Pause: Mid-utterance (4,810 ms)*
02:11.795 - 02:13.176	"that make up the heart"
02:13.187 - 02:14.088	*Pause: Mid-utterance (901 ms)*
02:14.081 - 02:22.567	"but, to stimulate the heart to pump it only needs two or three cells to stimulate all the other cells"

The edited AUD-NO PAUSE version of the above example was reduced from the original 22,064 ms to 11,458 ms.

01:23.848 - 01:24.815	*Pause: Boundary (967 ms)*
01:24.826 - 01:29.720	"There are many million, 2-3 million cells that make up the heart"
01:29.720 - 01:29.960	*Pause: Mid-utterance (240 ms)*
01:29.961 - 01:35.306	"but, to stimulate the heart to pump it only needs two or three cells to stimulate all the other cells."

In summary, the deleted pause segments ranged from 3,000–8,000 ms. The edited AUD-NO PAUSE text was reduced by 3:51 min., from the original 14:12 min. to 10:22 min.

Questionnaire. Items about listeners' perceptions, attitudes and judgments about the presenter were selected from questionnaires used by Cokely (1981) and Said (2006). The resultant lists of questions (Appendix A) were grouped into three sections of attitudinal ratings that used an Osgood semantic differential scale. Bi-polar semantic adjectives were used to measure the connotative attitudes toward the statements.   The first series was designed to have respondents reflect on their thoughts of the speaker. The second series asked about how the respondents found the presenter's manner of speaking. The third group of questions asked respondents to provide their general impressions of the speaker using a five-point Likert scale using typical anchors of either *very much/very confident* to *not very much/not very confident*. A fourth group of questions asked about the respondents' perceptions of confidence in the accuracy of the presented material and whether or not the respondents enjoyed the presentation.

Procedures

Baseline data. In order to generate comparison data regarding the metanotative qualities of the presenter, the VID-PAUSE track was presented to the ASL-only participants without the English interpretation so that they were only exposed to the Deaf presenter. The questionnaire was completed after the segment ended.

Experimental Conditions. Participants were randomly assigned to either the AUD-PAUSE condition ($n = 23$) or the AUD-NO PAUSE condition ($n = 31$). Participants were seated in a classroom, and the track played over the classroom sound system. Participants in these conditions were not exposed to any video stimulus and were unaware the audio material was an interpreted product. After the track ended, participants were then asked to complete the questionnaire.

Results

The first point of analysis was whether the presence of pauses affected judgments of metanotative qualities by comparing the AUD-NO PAUSE condition to the AUD-PAUSE condition. Secondly, the researchers compared judgments of participants in the experimental conditions to the baseline data collected from participants viewing the speaker directly to determine if the disfluent pauses significantly changed listeners' perceptions of the speaker from the baseline condition.

Pausing and No-Pausing Audio Analyses

Questionnaire data were analyzed using t-tests to determine differences in the English speaking, non-signing AUD-PAUSE and AUD-NO PAUSE conditions. Table 1 summarizes these analyses. Only those differences significant at a 0.05 level or better will be discussed here.

Table 1

Comparisons Between Auditory Pausing and No-Pausing Conditions

Significant Differences			Non-Significant Differences		
Variable	Mean Difference	t-value	Variable	Mean Difference	t-value
Thoughts about the Speaker					
Credibility	1.37	2.99**	Honesty	0.52	1.27
Industriousness	0.75	2.30*	Pleasantness	0.34	0.78
Determinateness	1.14	2.44*	Sophisticatedness	0.78	1.83
Way of Speaking					
Pleasantness	1.06	3.28**	Boring	0.56	1.87
Organized	0.77	2.11*			
Refined	0.76	2.41*			
Easy to Understand	0.82	2.49*			
Describe the Speaker					
Educated	0.74	2.56*	Low/High Class	0.34	1.56
Knowledgeable	0.76	2.07*	Pleasant	0.286	0.93
Nervous	1.38	3.68**	Bossy/Friendly	0.37	1.37
Hesitant/Fluent	0.86	2.34*	Confident	0.72	191
			Choppy/Smooth	0.45	1.18
			Hard/Easy to understand	0.60	1.74
General Impressions					
How much learn	0.71	2.47*	Confident in accuracy	0.32	0.98
How much like	0.54	2.15*	How much enjoy	0.35	1.32
Pleasant to listen to	0.66	3.39***			

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Thoughts about speaker. The AUD-PAUSE and AUD-NO PAUSE groups made significantly different judgments about the speaker's credibility, t (42) = 2.99, $p = 0.01$; industriousness, t (40) = 2.30, $p = 0.05$; and whether participants thought the speaker was determinate, t (46) = 2.43, $p = 0.05$. Participants who heard the track with the atypical pauses

thought the speaker was less credible, less industrious and less determinate, than participants in the no-pause group. Participants in both groups did not differ in their perceptions of whether the speaker was honest, pleasant or sophisticated. Pausing negatively affected listeners' perceptions of the speaker.

Speaker's way of speaking. When asked to evaluate the speaker's way of speaking, participants in the AUD-PAUSE and AUD-NO PAUSE groups differed on four of five items. Those who heard the atypical pausing indicated the speaker was more unpleasant, t (51) = 3.28, *p* = 0.01; unorganized, t (39) = 2.11, *p* = 0.05; unrefined, t (48) = 2.41, *p* = 0.05; and difficult to understand, t (50) = 2.49, *p* = 0.05, than the no-pause group. The only variable in this section that did not differ significantly was the perception of whether the speaker was boring. Again, these data indicate that unnatural pausing led to negative perceptions of the speaker.

Describe the speaker. When asked to describe the speaker, participants differed in terms of judgments about how educated, t (45) = 2.56, *p* = 0.05; how knowledgeable, t (44) = 2.07, *p* = 0.05; how nervous t (46) = 3.68, *p* = 0.01; and how hesitant the speaker was, t (47) = 2.34, *p* = 0.05. The AUD-PAUSE group had significantly lower ratings of these perceptions. The two groups did not differ in terms of perceptions of class; pleasantness; bossy or friendly; confident; choppy or smooth; and whether the speaker was hard or easy to understand. These analyses also show the negative impact of dysfluent pauses.

General impressions. The final section of the questionnaire asked participants to grade a number of statements using a Likert-type scale. There were significant differences in statements focusing on how much participants reported that they learned, t (49) = 2.47, *p* = 0.05; how much they like the presentation, t (52) = 2.15, *p* = 0.05; and whether the presentation was pleasant to listen to, t (51) = 3.39, *p* = 0.001, with the AUD-NO PAUSE group rating these variables more favorably. Factors with no significant differences included the participants' confidence in the accuracy of the information that was presented and how much they enjoyed the presentation.

Analyses of ASL Baseline Viewers and the Non-signing English Listeners

The atypical pauses clearly changed listeners' perceptions on quite a few items in a negative way. The second analysis compared the data from participants in the experimental conditions to those in the baseline condition to determine whether or not the impressions of interpreted text varied significantly from the impressions of the original ASL text. Recall that the ASL text was presented in ASL-only and the audio texts were delivered in English only.

An analysis of variance (ANOVA) was used to determine if there were any differences between the AUD-PAUSE, the AUD-NO PAUSE and the VID-ASL group responses. The main effect of Condition was significant, so Tukey HSD *post hoc* tests were performed to identify which specific conditions were different from each other. Table 2 summarizes these statistical tests. Only comparisons that were significant at the *p* < 0.05 level are discussed here.

Describe the speaker. When asked to describe the speaker, participants in the VID-ASL group and the AUD-PAUSE group differed in response to their perception of the speaker's confidence (*p* = 0.019); whether the speaker was knowledgeable (*p* = 0.028); and whether the speaker was nervous (*p* = 0.002); and/or hesitant (*p* = 0.031). Once pauses were removed from

the auditory stimulus, listeners judged the auditory stimulus similarly to the VID-ASL group. The interpreter did not cause a change in listeners' perceptions of these qualities when pausing was within normal limits. However, when atypical pauses were introduced by the interpreter, listeners' perceptions of the speaker changed. Clearly, disfluent pausing had an impact on listener's perceptions of the speaker as compared to the baseline VID-ASL condition.

Table 2

Tukey HSD Post-hoc Test Summary

	VID-ASL vs. AUD-NO PAUSE	VID-ASL vs. AUD-PAUSE	AUD-PAUSE vs. AUD-NO PAUSE
Describe the Speaker			
Unconfident Speaker		$p = 0.019$	
Unknowledgeable Speaker		$p = 0.028$	
Nervous Speaker		$p = 0.002$	$p = 0.001$
Hesitant Speaker		$p = 0.031$	$p = 0.049$
General Impression			
Like Presentation	$p = 0.016$	$p = 0.001$	
Enjoy Presentation	$p = 0.043$	$p = 0.009$	
Pleasant to Listen to	$p = 0.001$	$p = 0.000$	$p = 0.006$

General impressions. The analysis also revealed several significant differences between the VID-ASL group and the AUD-PAUSE group. The VID-ASL group rated three of the following areas more favorably than the AUD-PAUSE group: how much participants liked the presentation ($p = 0.001$); how much participants enjoyed the presentation ($p = 0.009$); and whether the presentation was pleasant to listen to ($p = 0.000$). The VID-ASL group also rated the same characteristics better than the AUD-NO PAUSE group. The VID-ASL group liked the presentation better than participants in the AUD-NO PAUSE group ($p = 0.016$); they enjoyed the presentation more ($p = 0.044$); and found the presentation more pleasant to listen to ($p = 0.001$). In this case, participants in the VID-ASL group judged speaker more favorably than the AUD-NO PAUSE suggesting that the interpretation with normal pausing still led to some altered perceptions of the speaker on a few variables as compared to perceptions in the baseline condition. Of greater interest is that the AUD-NO PAUSE group rated the speaker more favorably than the AUD-PAUSE group, showing again just how negatively disfluent pausing effect a listener's perceptions of the speaker.

Discussion

The current experiment manipulated the pausing features of an interpreted text to determine if participants' judgments of the speaker would change. The data supported the hypothesis that listeners' perceptions would change if an interpreter were used to convey meaning and if that interpreter generated disfluent pauses. Analysis showed that the atypical pauses led listeners to rate the speaker significantly lower on a variety of metanotative qualities. A second analysis indicated that those listeners who did not have to rely on the interpretation had different perceptions than those listeners who only heard the interpretation.

The listener's perceptions of characteristics such credibility, industriousness and level of determinateness were negatively affected by disfluent pausing. Disfluent pausing also created a strong impression that the speaker was unorganized, unrefined and difficult to understand. There was a rather large negative effect of disfluent pausing on perceptions of the perceived level of education, and whether the speaker was knowledgeable, nervous, or hesitant. Not all personality characteristics were affected, however; pausing disfluencies had no bearing on perceptions of class, pleasantness, friendliness, confidence, smoothness or ease of understanding.

This contrasts sharply with the perceptions of the ASL baseline group. The group who saw the presenter and did not hear the interpreter held positive impressions of the speaker's credibility and how knowledgeable he was, and thought him as less nervous and less hesitant than did the group listening to the interpreter. This served as a manipulation check; the negative impressions of the experimental group were very different from those in the baseline condition and likely stem from the pauses introduced by the interpreter rather than from the speaker.

The ASL presenter was pursuing a degree in the topical area and presented a lecture designed by an assistant professor of physiology. He was clearly an educated and knowledgeable speaker, yet the disfluent pausing in the interpretation negatively impacted the audience's perception of these factors. Paradoxically, the disfluent pausing stripped these positive impressions away, yet listeners still expressed confidence in the accuracy of the information. It is possible that the high register and scientific terminology may have given listeners a sense of confidence in the accuracy of the information, or the audience may have had prior knowledge of the topic that allowed them to confirm its accuracy. This may warrant further investigation.

Interpreters have an obligation to interpret content, but as Cokely (1981) found, interpreters also channel, and potentially alter, metanotative information about the speaker. Cokely documented differences in the metanotative judgments made by Deaf and non-Deaf participants regarding the speaker in an English to ASL situation. This study extends those findings to an ASL to English interpreted scenario. Taken together, these studies serve as a caution that listeners will judge the metanotative qualities of a speaker based on the interpretation and that introducing atypical pauses into an interpretation will cause listeners to form a poor impression of the speaker.

Limitations

These data indicate that participants observing the Deaf speaker formed more positive impressions than participants listening to the interpreter's product. While the participants who observed the Deaf speaker directly had attained a respectable level of proficiency in the

language, it is possible that native signers would have different impressions due to a higher level of fluency or shared culture with the speaker.

The participants in this experiment who listened to the interpretation were not made aware that it was an interpretation. Future research will investigate whether or not participants can distinguish between the metanotative characteristics of the speaker and of the interpreter when they know that what they are hearing is the product of two people. This will also allow the investigation of the nature of metanotative judgments made when a listener is not conversant in the language of the speaker, and serve as a useful replication of this work given the homogeneous nature of this sample and the small size of the baseline group.

Implications

The current study demonstrates the potentially significant consequences of errant pauses. Pausing disfluencies in an ASL-English interpreted text can negatively affect the listener's judgment of the speaker. Interpreter practitioners should be cognizant of the time engaged in target message planning and the fluency of their rendition to avoid changing the audiences' opinion of the speaker. Specifically, practitioners should be encouraged to plan a complete syntax unit before they begin to render it in the target language to avoid these atypical pausing features and familiarize themselves with the material ahead of time when that opportunity presents itself. Similarly, interpreter educators should draw attention to the impact of unnatural pauses in the interpretation on the audience's opinion of the speaker and guide students toward avoiding atypical pausing in practice.

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Appendix A
Questionnaire

Background information:

Sex (circle)   male   female **Age** _____   **Ethnicity** _____

First Language: English _____   Other (specify): _____

I think the speaker is...

Not at all honest	1	2	3	4	5	6	7	Very honest
Not at all pleasant	1	2	3	4	5	6	7	Very pleasant
Not at all sophisticated	1	2	3	4	5	6	7	Very sophisticated
Not at all credible	1	2	3	4	5	6	7	Very credible
Not at all industrious	1	2	3	4	5	6	7	Very industrious
Not at all determinate	1	2	3	4	5	6	7	Very determinate

How do you find this person's way of speaking?

Unpleasant	1	2	3	4	5	Pleasant
Unorganized	1	2	3	4	5	Organized
Boring	1	2	3	4	5	Interesting
Unrefined	1	2	3	4	5	Refined
Difficult to Understand	1	2	3	4	5	Easy to Understand

How would you describe the speaker?

Uneducated	1	2	3	4	5	Educated
Low Class	1	2	3	4	5	High Class
Unpleasant	1	2	3	4	5	Pleasant
Bossy/Authoritative	1	2	3	4	5	Friendly
Unconfident	1	2	3	4	5	Confident
Unknowledgeable	1	2	3	4	5	Knowledgeable
Nervous	1	2	3	4	5	Calm
Choppy	1	2	3	4	5	Smooth
Hesitant	1	2	3	4	5	Fluent
Hard to Understand	1	2	3	4	5	Easy to Understand

Are you confident in the accuracy of the information that was presented?

Not Very Confident	1	2	3	4	5	Very Confident

How much did you learn from this presentation?

Not Very Much	1	2	3	4	5	Very Much

How much did you like the presentation?

Not Very Much	1	2	3	4	5	Very Much

Did you enjoy the presentation?
Not Very Much   1   2   3   4   5 Very Much

Was the presentation pleasant to listen to?
Not Very Much   1   2   3   4   5 Very Much

Describe the speaker in your own words: